

## **CLAIMS**

1. A topical nerve diagnostic system with the use of a computer, characterized by that said topical nerve diagnostic system comprises:
  - a whole nerve pathway diagram data recording unit for storing data of whole nerve pathway diagrams;
  - a nerve finding data input unit for receiving normal finding or abnormal finding data input with respect to respective neural finding items;
  - a responsible nerve pathway data extraction unit for extracting data for drawing a responsible nerve pathway relating to neural finding items being in an abnormal finding from the data stored in said whole nerve pathway diagram data recording unit based on the data received in said nerve finding data input unit;
  - a display unit;
  - a whole nerve pathway indication unit for displaying a whole nerve pathway diagram on said display unit based on the data stored in said whole nerve pathway diagram data recording unit;
  - a responsible nerve pathway indication unit for displaying a responsible nerve pathway in the whole nerve pathway diagram displayed on said display unit by said whole nerve pathway indication unit based on the data extracted by said responsible nerve pathway data extraction unit; and
  - a responsible lesion estimation/indication unit for presuming a position of a responsible lesion in said whole nerve pathway diagram based on the responsible nerve pathway displayed on said display unit by said responsible nerve pathway indication unit.

2. The topical nerve diagnostic system according to claim 1, characterized by that the data stored in said whole nerve pathway diagram data recording unit contains data of at least names and positions of respective nerve nuclei in the whole nerve pathway diagram, connection relations in the respective nerve nuclei, and curves or straight lines representing nerve fascicles for connecting the nerve nuclei with each other.

3. The topical nerve diagnostic system according to claim 2, characterized by that said responsible nerve pathway data extraction unit is adapted to extract data of relevant names and positions of nerve nuclei in the whole nerve pathway diagram, relevant connection relations in the respective nerve nuclei, and curves or straight lines representing nerve fascicles for connecting the relevant nerve nuclei with each other from said whole nerve pathway diagram data recording unit in every neural finding items exhibiting abnormal findings.

4. The topical nerve diagnostic system according to claim 3, characterized by that said responsible lesion estimation/indication unit is adapted to detect a region where responsible nerve pathways displayed on said display unit intersect with each other and a region where said responsible nerve pathways approach one another in the closest relation, and presume the region detected to be a responsible lesion thereby to display the responsible lesion in said whole nerve pathway diagram on said display unit.

5. The topical nerve diagnostic system according to claim 4, characterized by that said topical nerve diagnostic system further comprises:  
a nerve pathway cut surface data recording unit for storing cut surface data in a specified region in said whole nerve pathway diagram;

a cut surface display region selection data input unit for receiving selection data input of a specified region in which a cut surface is to be displayed in the whole nerve pathway diagram displayed on said display unit;

a second responsible nerve pathway data extraction unit for extracting data for drawing a responsible nerve pathway relating to a neural finding item to be in an abnormal finding onto a cut surface of relevant specified region from the data stored in said nerve pathway cut surface data recording unit based on the data received by said cut surface display region selection data input unit and the data received by said nerve finding data input unit;

a nerve pathway cut surface indication unit for extracting relevant cut surface data from the data stored in said nerve pathway cut surface data recording unit based on the data received by said cut surface display region selection data input unit thereby to display said relevant cut surface;

a second responsible nerve pathway indication unit for displaying a responsible nerve pathway in the nerve pathway cut surface displayed by said nerve pathway cut surface indication unit based on the data extracted by said second responsible nerve pathway data extraction unit; and

a second responsible lesion estimation/indication unit for presuming a position of a responsible lesion in said relevant cut surface based on the responsible nerve pathway displayed on said display unit by said second responsible nerve pathway indication unit thereby to display the responsible lesion presumed in said relevant cut surface.

6. The topical nerve diagnostic system according to claim 5, characterized by that the data stored in said nerve pathway cut surface data recording unit contains data of relevant respective names and positions of nerve nuclei in the cut surface, connection

relations in relevant respective nerve nuclei, and curves or straight lines representing nerve fascicles for connecting the relevant nerve nuclei with each other in said every cut surfaces.

7. The topical nerve diagnostic system according to claim 6, characterized by that said second responsible nerve pathway data extraction unit is adapted to extract data of relevant respective names and positions of nerve nuclei in the cut surface, connection relations in relevant respective nerve nuclei, and curves or straight lines representing nerve fascicles for connecting the relevant nerve nuclei with each other from the relevant cut surface data stored in said nerve pathway cut surface data recording unit in every neural finding items to be in abnormal findings.

8. The topical nerve diagnostic system according to claim 5, characterized by that said second responsible lesion estimation/indication unit is adapted to detect a region where responsible nerve pathways displayed on said display unit intersect with each other and a region where said responsible nerve pathways approach one another in the closest relation, and presume the region detected to be a responsible lesion thereby to display the responsible lesion presumed in said cut surface.

9. The topical nerve diagnostic system according to claim 5, characterized by having a screen page switchover unit for switching over a screen page of said whole nerve pathway diagram in said display unit to a screen page of a cut surface in a specified region of said whole nerve pathway diagram.

10. The topical nerve diagnostic system according to any one of claims 1 to 9,

characterized by that said neural finding items include oculomotor restriction, inferior oculomotor restriction, jaw reflex acceleration, impaired facial tactal sensation, impaired facial pain/temperature sensation, corneal areflexia, exterior oculomotor restriction no, upper facial paralysis, lower facial paralysis, impaired taste, lowered pharyngeal reflex/swallowing difficulty, impaired pharyngeal sound dysphemia, lingual muscle paralysis/impaired lingual sound dysphemia, sternocleidomastoid paralysis, impaired upper limb pain/temperature sensation, impaired upper limb deep sensation, upper limb motor paralysis, superior limb tendon reflex, impaired trunk pain/temperature sensation, impaired trunk deep sensation, level of impaired trunk deep sensation, impaired lower limb pain/temperature sensation, inferior bathyesthesia disorder, lower limb motor paralysis, inferior limb tendon reflex, and Babinski reflex.

11. The topical nerve diagnostic system according to claim 1, characterized by that the data stored in said whole nerve pathway diagram data recording unit contains at least data of names and positions of respective spinal roots, respective muscles and respective skin areas in the whole nerve pathway diagram, connection relations in the respective spinal roots and the respective muscles, and curves or straight lines representing nerve fascicles for connecting the respective spinal roots with the respective skin as well as data of connection relations in the respective spinal roots and the respective skin areas, and curves or straight lines for connecting the respective spinal roots with the respective skin areas.

12. The topical nerve diagnostic system according to claim 11, characterized by that said responsible nerve pathway data extraction unit is adapted to extract data of relevant names and positions of spinal roots, muscles and skin areas in the whole nerve

pathway diagram, relevant connection relations in the respective spinal roots and the respective muscles, and curves or straight lines representing nerve fascicles for connecting the relevant respective spinal roots with the respective skins as well as data of relevant connection relations in the respective spinal roots and the respective skin areas, and curves or straight lines for connecting the relevant respective spinal roots with the respective skin areas from said whole nerve pathway diagram data recording unit in every neural finding items which are to be in abnormal findings.

13. The topical nerve diagnostic system according to claim 12, characterized by that said responsible lesion estimation/indication unit is adapted to detect a region where responsible nerve pathways displayed on said display unit overlap each other at the highest degree, and presume the region detected to be a responsible lesion thereby to display the responsible lesion presumed in said whole nerve pathway diagram on said display unit.

14. The topical nerve diagnostic system according to claim 13, characterized by having further a third responsible lesion estimation/indication unit excluding a responsible nerve pathway part corresponding to nerve fascicles for connecting a muscle or skin region in which finding data input comes to be a normal finding with the spinal roots relating thereto from the responsible nerve pathways displayed in said whole nerve pathway diagram on the display unit by means of said responsible lesion estimation/indication unit in the case when the finding data input as to abnormality of respective muscles or respective skin regions relating to said responsible nerve pathways is received by said nerve finding data input unit.

15. The topical nerve diagnostic system according to claim 14, characterized by that said neural finding items include perception disorder in respective muscle and skin regions relating to movements of respective articulations.

16. A neuroanatomy learning system with the use of a computer, characterized by that said neuroanatomy learning system comprises:

a nerve pathway cut surface data recording unit for recording cut surface data in at least one region of cerebrum and mesencephalon, at least one region of pons, at least one region of medulla oblongata, and at least one region of spinal cord, respectively, in a whole pathway diagram;

a display unit;

a nerve pathway cut surface indication unit for displaying cut surfaces of at least one region of the cerebrum and the mesencephalon, at least one region of the pons, at least one region of the medulla oblongata, at least one region of the medulla oblongata, and at least one region of the spinal cord, respectively, in this order based on the data stored in said nerve pathway cut surface data recording unit;

a nerve pathway selection data input unit for receiving selection data input of nerve pathways to be displayed on said display unit;

a nerve pathway data extraction unit for extracting data for drawing relevant nerve pathways from the data stored in said nerve pathway cut surface data recording unit based on the data received by the nerve pathway selection data input unit in every nerve pathway cut surfaces;

a nerve pathway indication unit for displaying relevant nerve pathways in a nerve pathway cut surface displayed by said nerve pathway cut surface indication unit based on the data extracted by said nerve pathway data extraction unit;

a nerve pathway cut surface selection data input unit for receiving selection data input for a nerve pathway cut surface which is intended to individually display among the nerve pathway cut surfaces displayed on said display unit by means of said nerve pathway cut surface indication unit;

an individual nerve pathway cut surface data extraction unit for extracting data for drawing a relevant nerve pathway cut surface from the data stored in said nerve pathway cut surface data recording unit based on the data received by said nerve pathway cut surface selection data input unit;

an individual nerve pathway cut surface indication unit for displaying a relevant nerve pathway cut surface on said display unit based on the data extracted by said individual nerve pathway cut surface data extraction unit; and

a nerve pathway-nerve nucleus name indication unit for displaying a name of a nerve pathway or a nerve nucleus which is selected in the nerve pathway cut surface displayed on said display unit by means of said individual nerve pathway cut surface indication unit.

17. The neuroanatomy learning system according to claim 16, characterized by that the data stored in said nerve pathway cut surface data recording unit contains data of relevant names and positions of nerve nuclei in said cut surfaces, relevant connection relations in the nerve nuclei, and curves or straight lines representing nerve fascicles for connecting relevant nerve nuclei with each other, and names of relevant nerve pathway and positions in said cut surfaces in every cut surfaces.

18. The neuroanatomy learning system according to claim 16 or 17, characterized by that at least one region of said mesencephalon consists of the upper part of

the mesencephalon and the lower part of the mesencephalon, at least one region of said pons consists of the upper, the middle, and the lower parts of the pons, at least one region of the medulla oblongata consists of the upper part, the upper-middle part, the middle, the middle-lower part, and the lower part of the medulla oblongata, and at least one region of said spinal cord consists of a cervical segment, a thoracic segment, and a lumbar segment.